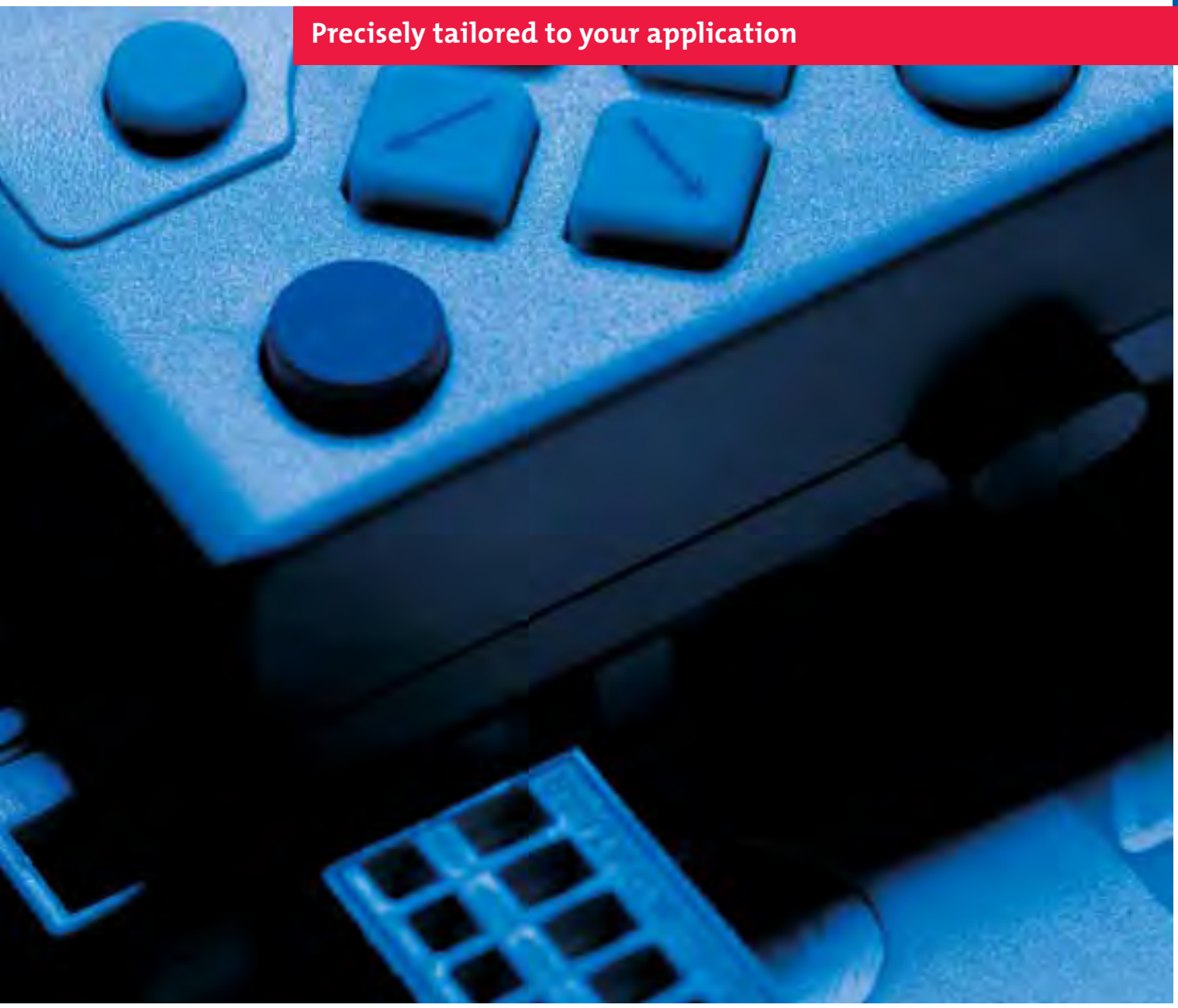
L-force

8400 Inverter Drives

Precisely tailored to your application

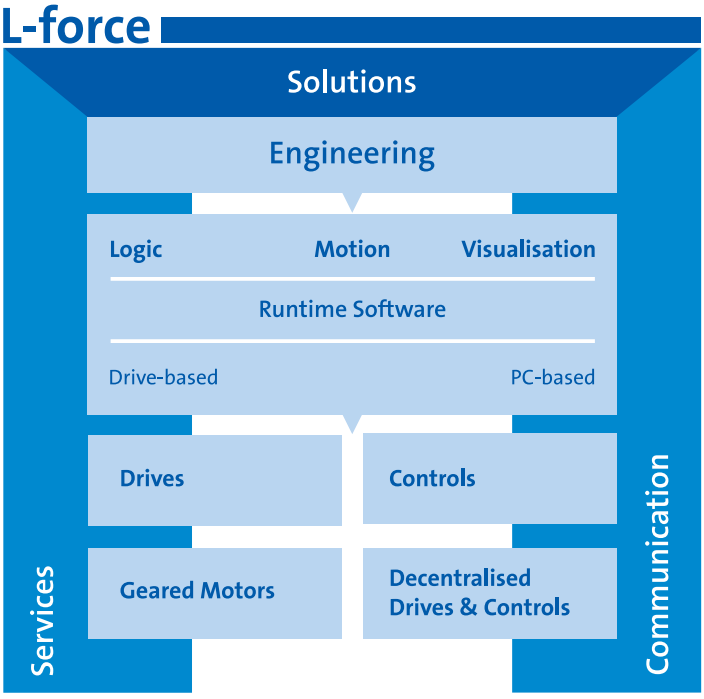


Lenze

L-force | Your future is our drive

Demands are increasing all the time. In future, key challenges will lie in the areas of cost efficiency, time-saving and quality improvements. Faster project planning and commissioning, improved performance and increased flexibility in production are expected. New ideas are therefore needed for the machines of the future.

Lenze has risen to this challenge and, with L-force, we can now not only offer you an innovative family of drive and automation products, but also a new, comprehensive portfolio of solutions.



Driven by innovation – New ideas for new possibilities

Always on the lookout: Our idea of innovation is working on even better solutions for our customers, every day.

Driven by flexibility – High degree of scalability for individual solutions

Scalability is an important aspect of the **L-force** philosophy. Performance, scope of functions, software, service provisions and aftersales care – Lenze will provide you with exactly the combination you require.

Driven by usability – Simple solutions, even for complex applications

We always focus on the user. Therefore, when we developed **L-force,** we made sure that people with plenty of practical experience were involved, right from the start.

Driven by compatibility – Universal products and solutions

Don't waste any more time searching for suitable components and the right interfaces. With **L-force,** everything is compatible.

Rightsized is our drive – the right solution for every application

We call it “rightsizing”: let the new 8400 Inverter Drives optimise your processes and increase the value added.

8400 | The principle of “rightsizing”

We call it “rightsizing”: The new 8400 Inverter Drives have been designed for consistent process optimisation – throughout all phases of the value-added chain. They reduce your outlay in every stage from selection onwards, via project planning and commissioning and beyond to production and service. The result is a significant increase in your productivity.

Rightsized for increased productivity
In terms of functionality and drive behaviour, each successive model in the 8400 series builds on the previous one. Hence, selection could not be easier. On each and every one, the diagnostics ports and tools, operation and parameterisation are identical. If you are using several different types of controller in your application
– be they stand-alone or networked via fieldbus – the 8400 series is more than capable of rising to the challenge.

Rightsized for the future
Modifications at a later date are no problem. If the features of one model no longer suffice, you can simply replace it with a more advanced one – without having to redesign your control cabinet. Combined with environmentally-friendly production, compliant with ISO 14001 and RoHS, this makes the series future-proof.

Rightsized for quick start-up
The inverters are supplied fully pre-assembled including integrated shield connections. This reduces the time required for fine-tuning prior to assembly. Simply select predefined applications to tailor the frequency inverter to meet the requirements of your application. In the simplest case, all you need to do is set two parameters: “application” and “setpoint source”.

Rightsized for optimum operation
When developing human machine interfaces we never lose sight of the importance of the human element. Whether you are working with a keypad or on a PC, you will be supported by intuitive user menus which have been refined down to the very last detail for optimum benefit in practical applications..

Rightsized for fast service
Diagnostics and parameterisation using remote maintenance make for quick and cost-effective service all over the world. A memory module, integrated shield sheets and pluggable terminals mean that drives can be replaced quickly and easily, thereby reducing machine downtimes.

The technology | everything you need for intelligent workflow

Port for DC-bus operation
(400 V version only)

Pluggable mains connection
(StateLine and higher)

Pluggable relay port

Communication module
optional
(StateLine and higher)

Memory module
for offline and online parameterisation, contains all drive data

L-force Diagnostics interface
for PC adapter or keypad

Pluggable control terminals
with spring contacts
(StateLine and higher)

Pluggable motor connection
(StateLine and higher)

On-board CANopen
(StateLine and higher)
- DS301-compliant
- Pluggable T-connector for easy wiring

Integrated shield connection
for the motor cable
(StateLine and higher)

Integrated shield connection
for control cables

The memory module
The memory module is the storage unit for all parameters. The pluggable memory chip can be parameterised via the frequency inverter itself or using a PC. Once this is complete, you can copy the parameter settings to as many modules as you wish. The advantage this offers you is that commissioning takes significantly less time, in particular where series production is concerned. Furthermore, thanks to the memory module, replacing drives will always be a quick and easy process.

Online diagnostics
Every model in the 8400 series features a standard hot-pluggable interface for user-friendly operation, parameter setting and diagnostics. Both data access and parameter modification are available even during operation – whether as a stand-alone device or via fieldbus networking.

Pluggable control connection
Straightforward wiring – simply plug and go. The plug-in terminals on the 8400 ensure simple and safe installation. As the terminals are pluggable, the inverters can be assembled and disassembled quickly at any time.

Basic features of all 8400 models

- 45°C operating temperature without derating (max. 55°C)
- IP20 protection
- Memory module for quick commissioning and easy service
- Diagnostic interface for diagnostics and parameterisation even during operation
- Integrated interference suppression to EN 61800-3
- Automatic motor identification for optimum operational performance
- Protection against short circuits, earth faults and motor stalling for safe operation
- Approvals: CE, UL*, RoHS

* in preparation

BaseLine | for constant motion

The BaseLine version is the entry-level model in terms of functionality and drive behaviour. Featuring an integrated keypad and everything you would expect from a modern frequency inverter suitable for universal use, the 8400 BaseLine is the ideal solution for applications such as conveyor drives, pumps, fans or ventilators.

In addition to the basic features, 8400 BaseLine also offers:

- Freely configurable user menu
- VFCplus operating mode: V/f open loop, linear and quadratic
- SLVC operating mode: Sensorless vector control
- DC brake function
- I^2t motor monitoring

8400 BaseLine
(in preparation)

StateLine | for controlled motion

The 8400 StateLine has been designed specifically for drive controllers with or without speed feedback and is used wherever networking via bus systems is required. The integrated S-ramp function facilitates virtually wear-free acceleration and deceleration and the adjustable operating modes enable drive behaviour to be optimised in line with your process. Furthermore, integrated brake handling contributes to a significant reduction in wear on service brakes. In addition to the applications supported by the 8400 BaseLine, the StateLine is ideal for applications such as travelling/variable speed drives or conveyor drives with more complex requirements than standard applications.

In addition to the features of the Baseline, the 8400 StateLine also offers:

- Communication interface for communication modules
- On-board CANopen
- Operating mode VFCplus: U/f closed loop for simple speed-controlled applications
- Flying restart circuit for fast jerk-free flying restart of the motor
- S-ramps for low-jerk acceleration and deceleration
- Brake management
- Protection against restart on cyclic mains switching
- PID controller
- Freely interconnectable function blocks
- Logic functions (timer, AND, OR, comparator, arithmetic functions)
- Programmable counter

8400 StateLine

Communication | without limits

PROFIBUS communication module
for fieldbus link (StateLine and higher)
- Address switches
- Up to 16 process data words
- Sub-D port
- DP-V1 communication profile

Communication modules in preparation: EtherCAT, POWERLINK, PROFINET, Ethernet

Remote maintenance
Access to 8400 Inverter Drives process data, parameters and application programs any time, anywhere
- Telephone network or Ethernet link
- Software integration could not be easier thanks to OPC technology

Accessories | to make life easy

Keypad for StateLine
for fast access to data during commissioning and service
- Supports hot plugging
- Graphics display with plain text
- Backlighting
- Easy user guidance

Other accessories
are listed in the catalogues or on the Internet at **www.Lenze.com**

Hand terminal for StateLine
Keypad in durable housing, also suitable for installation inside a control cabinet
- Supports hot plugging
- Graphics display with plain text
- Backlighting
- Easy user guidance
- 2.5 m cable included in the scope of supply
- IP20 protection; IP65 for control cabinet installation

Engineer | Intuitive commissioning

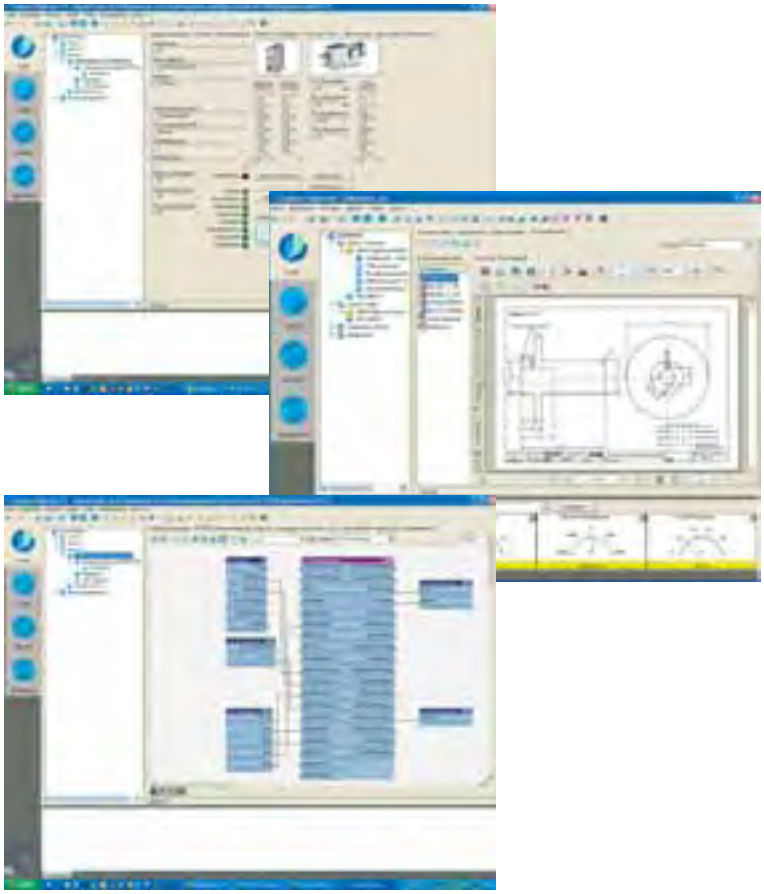
The software for the 8400
L-force Engineer is the engineering tool for commissioning and diagnosing L-force products. Both the StateLevel and the HighLevel versions feature an intuitive user interface and transparent dialogues, with the result that the L-force Engineer is matched to the needs of the user and very easy to learn to use. The main navigation section sorts important functions transparently into various views. Numerous graphics interfaces make drive parameterisation and configuration easy. Cross-drive engineering comes as standard with L-force Engineer StateLevel and HighLevel.

StateLevel Engineer
Supporting all the diagnostics functions they might need, StateLevel is ideal for service personnel and commissioners. It can even be used to implement projects on a smaller scale with up to five drives! To put more target systems into operation, the scope of supply also includes the GDC easy parameter setting program and the L-force-Loader.

HighLevel Engineer
Contains additional essential functions for projects on a larger scale, e.g. “Build network”, “Interconnect communication” or the function block editor. You can transfer your own documentation to the engineer project so that everything you need is in one place. You can also use the GDC parameter setting program included in the scope of supply to configure Global Drive series target systems and put them into operation.

USB diagnostic adapter
for an isolated connection between your PC and the frequency inverter.

- Supports hot plugging
- Diagnostic LED for data transfer display
- Connecting cables available in lengths of 2.5, 5 or 10 m
- Plug and play



The technology | an overview

Technical data

		BaseLine D *	StateLine C
Performance data	230 V/1 ph (180 V–0% – 264 V+0%)	0.25 kW to 2.2 kW	
	400/500 V/3 ph (320 V–0 % – 550 V+0 %)	0.37 kW to 2.2 kW	0.37 kW to 11.0 kW *)
	Overload	150 % (60 s) 180 % (3 s)	150 % (60 s) 200 % (3 s)
Operating conditions	Operating temperature	–10°C to 45°C (derating from 45°C to 55°C: 2.5% per K)	
	Transport	–25°C to 70°C	
	Storage	–25°C to 60°C	
	Enclosure	IP20	

* in preparation

*) 3.0 to 11.0 kW in preparation

		BaseLine D *	StateLine C
Interfaces	Memory module	●	●
	Diagnostic interface	●	●
	Diagnostic LEDs	4	4
	Integrated 4-digit display with operator panel/keypad (option)	●/-	-/●
	Communication interface for communication modules	–	●
	On-board CANopen with DIP switch for address, baud rate and bus termination	–	●
	Relay AC 250 V/3 A, DC 24 V/2 A ... 240 V/0,16 A	●	●
	DC-bus operation (400 V only)	●	●
	External 24 V supply	–	●
	Integrated brake chopper	–	●
	Integrated shield connection for control cables	●	●
	Integrated shield connection for motor cable	–	●
	“Controller enable” digital input	●	●
	PTC/thermal contact input	–	●
	Programmable digital inputs (DI 1n)	4	4
	Frequency input 1: 10 kHz (DI 1/2)	–	●
	Digital output (50 mA)	1	1
	Analog input 1: 0 ... +10 V, 0/4 ... 20 mA	1	1
	Analog output 1: 0 ... 10 V	1	1

* in preparation

The technology | an overview

Technical data

		BaseLine D *	StateLine C
Functions	Application-oriented commissioning (predefined applications)	●	●
	Freely configurable user menu	●	●
	Motor identification	●	●
	VFCplus operating mode (V/f open loop, linear and quadratic)	●	●
	SLVC (sensorless vector control) operating mode	●	●
	VFCplus operating mode (V/f closed loop)	–	●
	Flying restart circuit (parameterisable)	–	●
	S-ramps for low-jerk acceleration and deceleration	–	●
	PID controller	–	●
	Brake management for brake control with low rate of wear	–	●
	DC brake function	●	●
	Fixed frequencies	3	16
	Freely interconnectable function blocks	–	●
	Logic functions (timer, AND, OR) Comparator, arithmetic function	–	●
	Programmable counter	–	●
	Skip frequencies	–	●
	Ixt monitoring frequency inverter	–	●
	I^2t motor monitoring	●	●
	Data logger	●	●
Features	Protection against restart on cyclic mains switching	–	●
	Protection against short circuits, earth faults, overvoltage, motor stalling	●	●
	Integrated interference suppression to EN 61800-3	●	●
	Fans can be replaced	–	●
	I/O data monitoring during operation	–	●
	Approvals UL*, CE, RoHS	●	●

* in preparation